FlyBy Math™ Alignment
Mathematics Content Standards, Benchmarks and Performance Standards
June 2002

Strand: ALGEBRA
Standard: Students will understand algebraic concepts and applications**.**

5-8 Benchmark: Understand patterns, relations, and functions.

Performance Standards: Grade 7	***FlyBy Math™* Activities**
2. Represent a variety of relationships using tables, graphs, verbal rules, and possible symbolic notation, and recognize the same general pattern presented in different representations.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
6. Solve problems involving rate, average speed, distance, and time.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

5-8 Benchmark: Represent and analyze mathematical situations and structures using algebraic symbols.

Performance Standards: Grade 7	***FlyBy Math™* Activities**
5. Graph linear functions and identify slope as positive or negative.	--Interpret the slope of a line in the context of a distance-rate-time problem. --Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates.
6. Use letters as variables in mathematical expressions to describe how one quantity changes when a related quantity changes.	--Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios. --Interpret the slope of a line in the context of a distance-rate-time problem.

5-8 Benchmark: Use mathematical models to represent and understand quantitative relationships.

Performance Standards: Grade 7	***FlyBy Math™* Activities**
2. Understand and use the coordinate plane to graph ordered pairs and linear equations.	--Represent distance, speed, and time relationships for constant speed cases using linear equations and a Cartesian coordinate system.
3. Select and use an appropriate model for a particular situation.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.

5-8 Benchmark: Analyze changes in various contexts.	
Performance Standards: Grade 7 1. Use variables and appropriate operations to write an expression, an equation, and/or an inequality that represents a verbal description involving change.	***FlyBy Math™* Activities** --Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
3. Graph and interpret linear functions as they are used to solve problems.	--Use graphs to compare airspace scenarios for both the same and different starting conditions and the same and different constant (fixed) rates. --Interpret the slope of a line in the context of a distance-rate-time problem.

Strand: MEASUREMENT **Standard:** Students will understand measurement systems and applications.	
5-8 Benchmark: Understand measurable attributes of objects and the units, systems, and processes of measurement.	
Performance Standards: Grade 7 5. Use measures expressed as rates and measures expressed as products to solve problems, check the units of the solutions, and analyze the reasonableness of the answer.	***FlyBy Math™* Activities** --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.
5-8 Benchmark: Apply appropriate techniques, tools, and formulas to determine measurements.	
Performance Standards: Grade 7 3. Solve problems involving scale factors, ratios, and proportions.	***FlyBy Math™* Activities** --Apply mathematics to solving distance, rate, and time problems for aircraft conflict scenarios.

Strand: DATA ANALYSIS AND PROBABILITY **Standard:** Students will understand how to formulate questions, analyze data, and determine probabilities.	
5-8 Benchmark: Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them.	
Performance Standards: Grade 7 2. Select and use appropriate representation for presenting collected data and justify the selection.	***FlyBy Math™* Activities** --Represent distance, rate, and time data using tables, line plots, bar graphs, and line graphs. --Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.

9. Collect, organize, and represent data sets that have one or more variables and identify relationships among variables within a data set.	--Represent distance, speed, and time relationships for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
5-8 Benchmark: Select and use appropriate statistical methods to analyze data.	
Performance Standards: Grade 7 3. Use the analysis of data to make convincing arguments.	***FlyBy Math™* Activities** --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
5-8 Benchmark: Develop and evaluate inferences and predictions that are based on data.	
Performance Standards: Grade 7 1. Formulate and justify mathematical conjectures based on data and a general description of the mathematical question or problem posed.	***FlyBy Math™* Activities** --Explain and justify solutions regarding the motion of two airplanes using the results of plotting points on a schematic of a jet route, on a vertical line graph, and on a Cartesian coordinate system.
2. Analyze data to make accurate inferences, predictions, and to develop convincing arguments from data displayed in a variety of forms.	--Apply mathematics to predict and analyze aircraft conflicts and validate through experimentation. --Predict outcomes and explain results of mathematical models and experiments.